

- On page 1, please replace the paragraph under the heading "Cross Reference to Related Applications" beginning at line 8 with the following:

This application is a continuation of U.S. application serial number 09/684,238 filed 5 October 2000 entitled "Electrical Component Assembly and Method of Fabrication," now abandoned, which is hereby incorporated herein in its entirety by reference. This application further claims the benefit of priority of the following applications, which are hereby incorporated herein in their entirety by reference: U.S. provisional application serial number 60/220,027 filed 21 July 2000 entitled "Advances in Materials for Low Cost Flip-Chip;" and U.S. provisional application serial number 60/233,561 filed 19 September 2000 entitled "Manufacturing of Low Cost Smart Labels."

- On page 7, replace the paragraph beginning at line 4 with the following:

G2 The hard particles can be formed from a metal, metal alloy, or an intermetallic. The metals include, for example, copper, aluminum, nickel, tin, bismuth, silver, gold, platinum, palladium, lithium, beryllium, boron, sodium, magnesium, potassium, calcium, gallium, germanium, rubidium, strontium, indium, antimony, cesium, barium, and intermetallics and alloys of these metals. The hard particles can also be formed from a non-metallic material, such as, metal oxides, nitrides, borides, silicon and other carbides, beryllium, boron fibers, carbon fibers, garnet or diamond. Diamond is a preferred non-metallic hard particle. Where non-metallic particles are used, the hard particles are surrounded by a conductive metal. Nickel is a preferred coating for such particles. Where a thermal conductor is desired diamond and ceramics are preferred materials.

- On page 11, replace the paragraph beginning at line 5 with the following:

G3 A plurality of electrical contact sites, referred to herein as "contact lands" 114, reside on a bonding surface 116 of substrate 112 and are arranged to receive corresponding hard particles 118, which in the present embodiment, are affixed to metallized bonding pads 120 of electrical component 110. Hard particles 118 can be formed from a metal, metal alloy or an intermetallic. In accordance with the invention hard particles 118 can be formed from, for example, copper, aluminum, nickel, tin, bismuth, silver, gold, platinum, palladium, lithium, beryllium, boron, sodium, magnesium, potassium, calcium, gallium, germanium, rubidium, strontium, indium, antimony, cesium, barium, and intermetallics and alloys of these metals. Hard particles 118 can also be formed from a non-metallic material, such as, metal oxides, nitrides, borides, silicon and other carbides, beryllium, boron fibers, carbon fibers, garnet or

43 diamond. In a preferred embodiment of the invention, hard particles 118 are composed of a diamond core plated with a layer of nickel.

- On page 27, replace the paragraph beginning at line 7 with the following:

The reliability of the contact was determined under flex tests performed in accordance with ISO standard No. 10373. The tests were not performed under contact or RF reader mode. Instead, contacts were attached to each card and the presence or absence of current was tested continuously. The ISO standard calls for satisfactory interconnect after 1000 flexes.

- On page 28, replace the paragraph beginning at line 14 and continuing over to page 29 with the following:

2. Smart card components attached in accordance with the present invention meet ISO standards, which require acceptable performance after 1000 flexes. (Three cards assembled with cyanoacrylate survived 4000 or more ISO flexes.)

- On page 29, replace the paragraph beginning at line 9 with the following:

4. Smart cards produced using the process of the present invention can "self-heal" during flex induced failures. It is believed that the contact can be opened during bending but upon relaxation, the contact between module and antenna coil is repaired.

In the Claims:

Please amend claim 23 as follows:

50001723. (Amended) An electrical component assembly as described in claim 21 further comprising a non-conductive adhesive material applied to at least selected portions of the surface of the substrate and the plurality of hard particles.

REMARKS

Explanation of Amendments:

The title is amended at the request of the Office to more closely conform to the subject matter of the claims elected for examination in this application. The cross reference to related applications is amended to update the status of U.S. application serial no. 09/684,238 and to correct a typographical error in the reference to U.S. provisional application serial no. 60/233,561.

On page 7, in the paragraph beginning at line 4, the spelling of the word "palladium" is corrected and a comma "," is added to appropriately distinguish between terms in the list.